

## ADB Working Paper Series on Regional Economic Integration



### Hot Money Flows, Commodity Price Cycles, and Financial Repression in the US and the People's Republic of China: The Consequences of Near Zero US Interest Rates

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## Contents

Abstract	iv
1. Introduction	1
2. Hot Money Flows and Inflation in Emerging Markets	2
3. Price Bubbles in Primary Commodities and Political Instability	4
4. Financial Repression in the US	6
5. Financial Repression in the People's Republic of China	9
6. What is the Solution?	11
References	13
ADB Working Paper Series on Regional Economic Integration	14
Figures	
1. GDP Weighted Discount Rate of BRICS and G3	1
2. Foreign Exchange Reserves—Emerging Markets and the People's Republic of China (billion \$)	3
3. The US Dollar's Effective Exchange Rate Movements, 2000–2012 (January 2000 = 100)	3
4. US Inflation, Emerging Market Inflation, and US Import Prices (y-o-y, %)	4
5. The Greenspan–Bernanke Bubble Economy, 2003–2012 (January 2005 = 100)	5
6. Food and Agriculture Product Prices (January 2005 = 100)	6
7. Asset Holdings of US Commercial Bank Assets, October 2008–October 2012 (billion \$)	7
8. GDP Composition of the People's Republic of China, 1981–2011	8
Table	
1. Selected Interest Rates of the People's Republic of China and the United States, September 2012	9

## **Abstract**

Under near zero United States (US) interest rates, the international dollar standard malfunctions. Emerging markets with naturally higher interest rates are swamped with “hot money” inflows. Emerging market central banks intervene to prevent their currencies from rising precipitously. They subsequently lose monetary control and begin inflating. Primary commodity prices rise worldwide unless interrupted by an international banking crisis. This cyclical inflation on the dollar’s periphery only registers in the US core consumer price index (CPI) with a long lag. The zero interest rate policy also fails to stimulate the US economy as domestic financial intermediation by banks and money market mutual funds is repressed. Because the People’s Republic of China (PRC) is forced to keep its interest rates below market-clearing levels, it also suffers from “financial repression,” although in a form differing from that in the US.

*Keywords:* Dollar standard, carry trades, commodity price inflation

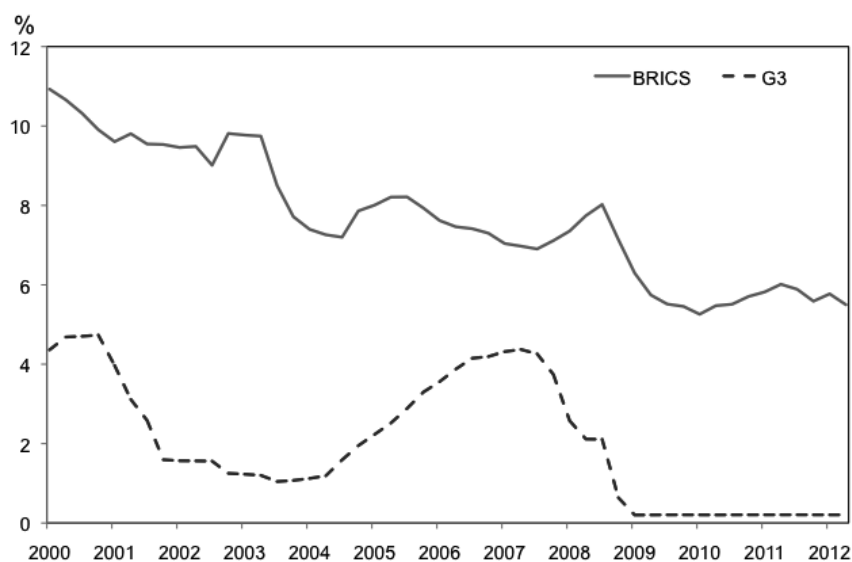
*JEL Classification:* F31, F32

## 1. Introduction

The international dollar standard is malfunctioning. The United States (US) Federal Reserve's reduction of the interest rate on Federal Funds to virtually zero in December 2008—a move that was followed by other industrial countries—exacerbated the wide interest rate differentials with emerging markets and provoked worldwide monetary instability by inducing massive “hot money” outflows by carry traders in Asia and Latin America (McKinnon 2013). A carry trader is one who exploits interest rate differentials across countries by borrowing in low interest rate currencies to invest in currency domains with higher interest rates (Menkhoff et al. 2012).

Figure 1 shows the persistently wide gap between policy rates in emerging markets, represented by the BRICS—Brazil, Russian Federation, India, the People's Republic of China (PRC), and South Africa—compared with the advanced industrial countries. As the interest rates in advanced economies have approached zero during the recent wave of crises, interest rates in the emerging world have declined. Whereas the interest rate cuts in the industrialized world aimed to stabilize domestic economies during crisis events, the resulting rise of speculative capital inflows in emerging markets has contributed to rising inflationary pressures, speculative booms in local real estate markets, and hikes in food and energy prices. This has led to rising monetary, macroeconomic, and political instability in the emerging world (Magud et al. 2012).

**Figure 1: GDP Weighted Discount Rate of BRICS and G3**



BRICS = Brazil, Russian Federation, India, People's Republic of China, and South Africa; GDP = Gross Domestic Product; G3 = Group of Three: Germany, Japan, and the United States.

Source: EIU and IMF.

## 2. Hot Money Flows and Inflation in Emerging Markets

Over the past decade, speculative money from carry traders flooding into emerging markets with higher interest rates has provoked domestic inflation and led to local currencies being overvalued. When emerging market currency exchange rates are not tied down by official parities, their ongoing appreciation induces more hot money inflows, as one-way bets on currency appreciation are induced (McKinnon and Schnabl 2009). Neglecting the exchange risks involved, carry traders see a double benefit: the higher interest rates in emerging markets combined with capital gains as their investment currencies appreciate against the US dollar.

To prevent or limit emerging market currencies from appreciating, emerging market central banks sell their local currency and buy dollars. In the presence of ongoing carry trades, however, emerging market central banks need to keep intervening to prevent continuing appreciation. This foreign exchange pressure leads to the violation of the theorem that a floating exchange rate gives monetary independence to central banks. Each emerging market central bank feels forced to stabilize its exchange rate in order to prevent currency appreciation that would make its exports less competitive against its neighbors. (Löffler, Schnabl, and Schobert 2012).

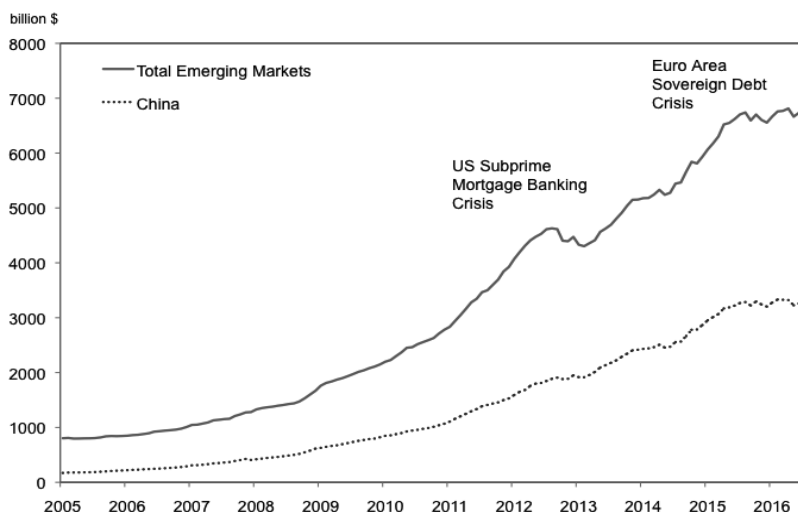
From 2001 to 2011, interventions by central banks in emerging markets were massive: emerging market foreign exchange reserves increased six-fold from US\$1 trillion to US\$7 trillion during the period (Figure 2). Although the PRC accounted for about half of this huge buildup, the combined interventions of large emerging markets—including Brazil, India, Indonesia, and Russian Federation—and a host of smaller ones were equally important.

This large buildup of foreign exchange reserves in emerging markets since 2001 has not been a smooth process. Speculative carry traders are often highly leveraged and heavily dependent on banks for finance. So if an unexpected worldwide banking crisis erupts, banks stop lending to their most risky customers: carry traders. Figure 2 shows declines in emerging market foreign exchange reserves coinciding first with the US subprime mortgage crisis in 2008/09 and again with the eurozone banking crisis since mid-2011.

These two interruptions of the carry trade are illustrated in Figure 3. If carry traders borrow in US dollars to invest in emerging market currencies, and then a banking crisis cuts off their flow of dollar credit, they must sell off their foreign exchange assets to repay their dollar loans. This scenario induced the US dollar to rise sharply in foreign exchange markets in 2009 and again in mid-2011 as inflationary pressures in emerging markets (temporarily) abated. However, if the large interest differential remains, we would expect the carry trade (and weak US dollar) to return once the euro zone banking crisis is over.



**Figure 2: Foreign Exchange Reserves—Emerging Markets and the People’s Republic of China (billion \$)**

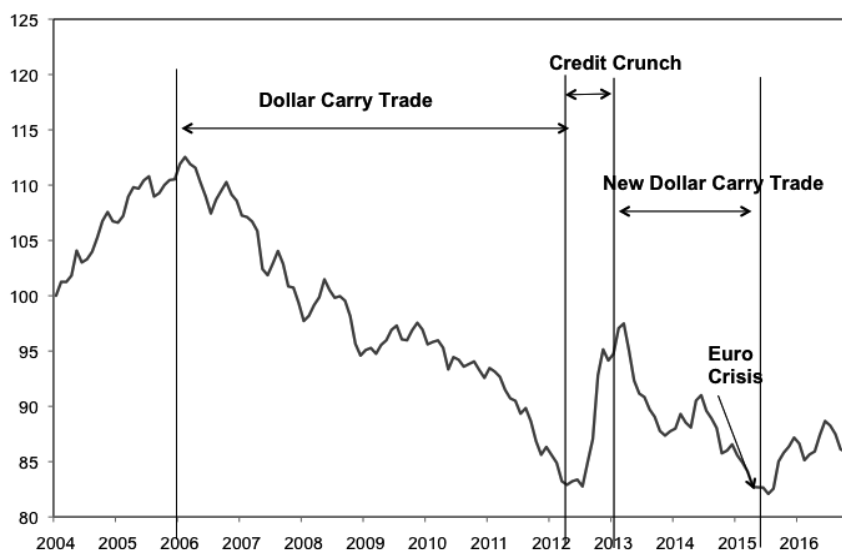


Notes:

1. Emerging Markets include the following countries: Russian Federation; Poland; Czech Republic; Hungary; Romania; Ukraine; Turkey; Israel; United Arab Emirates (UAE); Saudi Arabia; South Africa; People’s Republic of China (PRC); India; Hong Kong, China; Republic of Korea; Singapore; Indonesia; Malaysia; Thailand; Brazil; Mexico; Chile; Peru; Colombia; Argentina; and Venezuela.
2. Data missing for UAE (May 2012–July 2012) and the PRC (July 2012). It is assumed that there were no changes in reserves in these months.

Source: IFS.

**Figure 3: The US Dollar’s Effective Exchange Rate Movements, 2000–2012 (January 2000 = 100)**

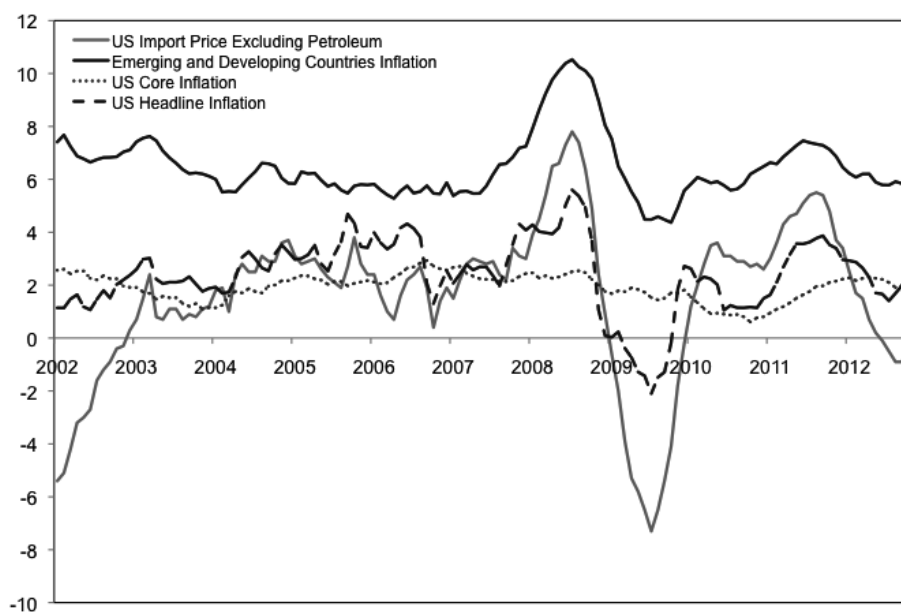


US = United States.  
Source: US Federal Reserve.

The sharp buildup of emerging market foreign exchange reserves, with concomitant increases in domestic base monies, was too big to be fully offset by sterilizing domestic money issuance through the sale of central bank bonds or increases in reserve requirements for domestic commercial banks (Löffler, Schnabl, and Schobert 2012). The resulting loss of monetary control in emerging markets has led to headline inflation that is generally higher than headline, and much higher than core, inflation in developed market economies (Figure 4). This higher inflation occurred despite the fact that, since 2002, emerging market currencies on average have appreciated against the currencies of developed countries.

Despite the Federal Reserve's goal of stabilizing domestic prices, US headline inflation can hardly be insulated from worldwide inflation because of international trade. Figure 4 also shows that US headline inflation moves together with emerging market inflation and US import prices.

**Figure 4: US Inflation, Emerging Market Inflation, and US Import Prices (y-o-y, %)**



US = United States, y-o-y = Year-on-Year.  
Source: IHS and IMF.

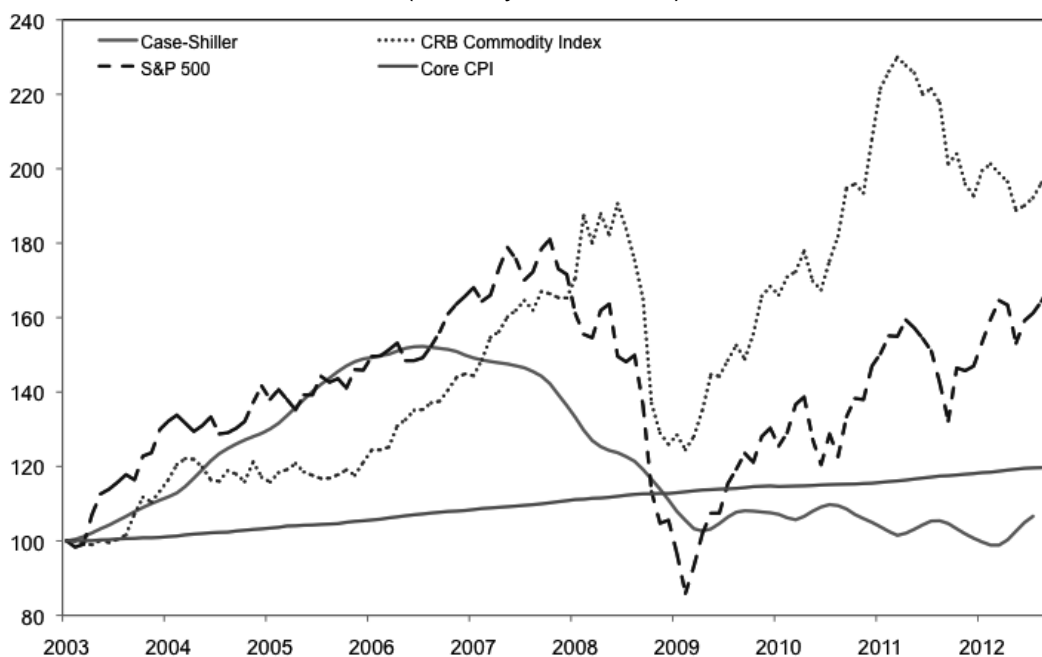
### 3. Price Bubbles in Primary Commodities and Political Instability

However, the inflationary impact of these carry trades associated with the ebb and flow of hot money into emerging markets is most obvious in the volatile cyclical movements in primary commodity prices internationally. Because many emerging markets produce primary commodities and are relatively important consumers of basic foodstuffs, their collective loss of monetary control can create worldwide commodity price bubbles.

Figure 5 shows the sharp rise in primary commodity prices from 2003 through mid-2008—the first phase of the carry trade after the US Federal Reserve had cut its interbank lending rate to just 1.0% in 2003/04. Primary commodity prices spiked in mid-2008 and then fell sharply into 2009 with the onset of the subprime mortgage banking crisis. Then, with the subprime banking crisis seemingly contained by mid-2009, hot money flows into emerging markets, due to interest differentials, started up again. Commodity prices spiked again in early 2011 before beginning to fall in mid-2011 as a result of the eurozone banking and sovereign debt crisis.

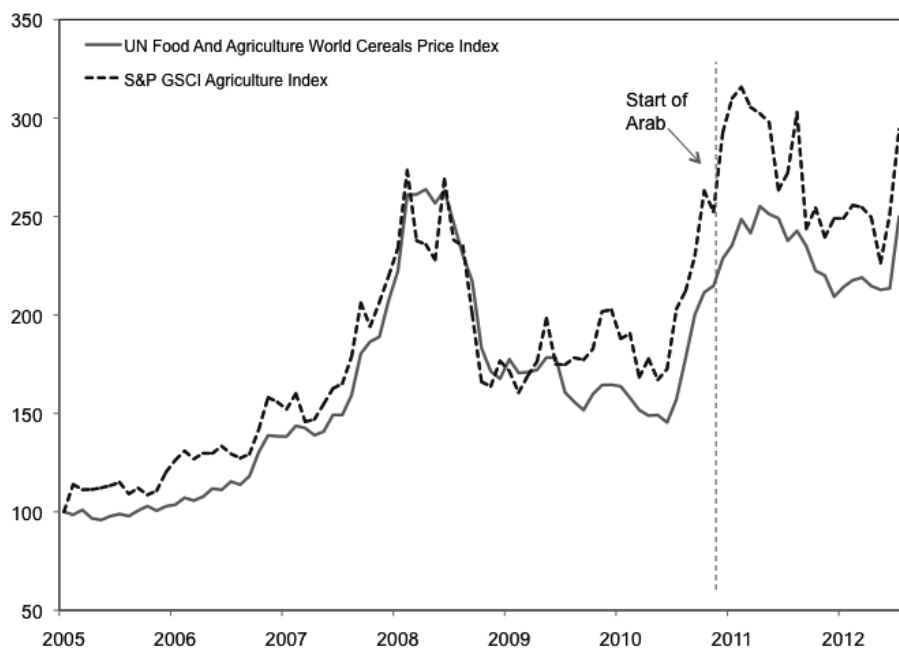
Figure 5 also shows the 50% increase in land prices between 2003 and late 2006 before prices collapsed, creating the US subprime mortgage credit crunch.

**Figure 5: The Greenspan–Bernanke Bubble Economy, 2003–2012**  
(January 2005 = 100)



CPI = Consumer Price Index, CRB = Commodity Research Bureau, S&P = Standard & Poor's  
Source: Bloomberg.

Are commodity price bubbles something to worry about? People in mature industrial countries are more insulated from the malign consequences of such bubbles than are those in developing countries. Food and energy make up larger shares of disposable income in developing countries, making the population more sensitive to inflationary pressure, particularly in food markets. Although both episodes of commodity price spikes created distress, Figure 6 shows that the sharp run-up in agricultural prices in 2010, when many basic food prices virtually doubled, corresponded with the food riots associated with the Arab Spring.

**Figure 6: Food and Agriculture Product Prices (January 2005 = 100)**

S&P GSCI = Standard & Poors (formerly Goldman Sachs Commodity Index),  
 UN = United Nations.  
 Source: Bloomberg.

In December 2010, it was a poor Tunisian food vendor that immolated himself—thus starting contagious riots throughout the Arab world. Unfortunately, the Arab Spring (as the name implies) was interpreted by Western diplomats as a sudden longing for democracy and a desire to throw out corrupt dictatorships—and thus it was widely believed that the West should support the rebels. If the Arab Spring had been recognized as mainly a food riot, the response of Western governments would have been more measured in taking sides, while focusing more actively on monetary measures to dampen cycles in primary commodity prices.

The disruption in emerging markets and other developing countries could be partially justified if zero interest rates on short-term US dollar assets had helped the US recover from the 2008/09 subprime mortgage crises. However, evidence suggests otherwise.

#### 4. Financial Repression in the US

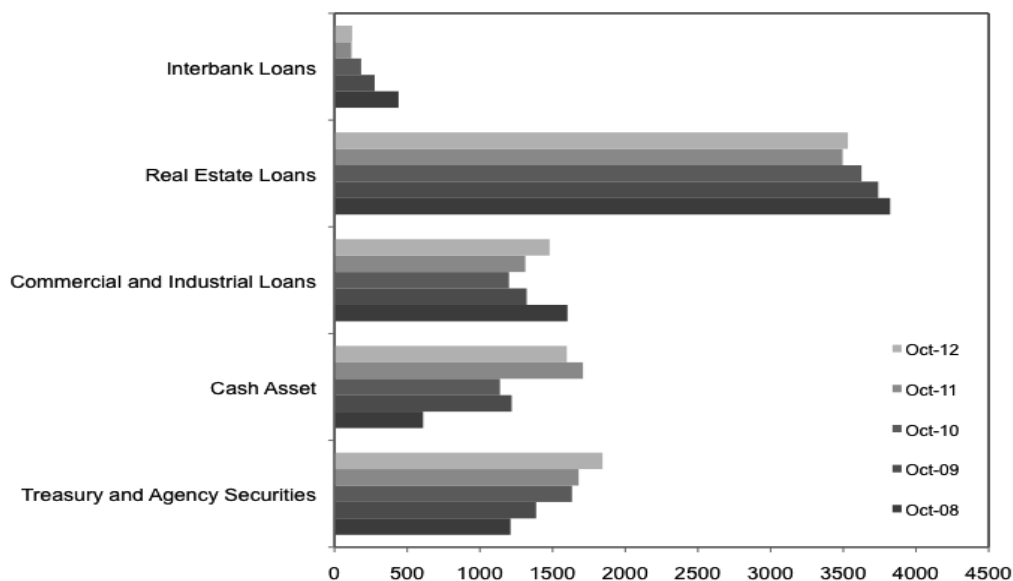
Although the low interest rate policy is claimed by the Federal Reserve to have stabilized US growth and, therefore, to also have had positive spillover effects in the emerging world, the zero interest rate policy per se is unlikely to have stimulated US growth. Conventional thinking has it that the lower the interest rate the more opportunities there are for credit to expand. But this is only true when interest rates—particularly interbank interest rates—are comfortably above zero. Banks with good retail lending opportunities typically lend by opening credit lines to non-bank customers. But these credit lines are

open-ended in the sense that the commercial borrower can choose when—and by how much—to draw on the credit line (subject to some maximum limit of course). Open-ended credit creates uncertainty for the bank since it is difficult to know what its future cash positions will be. An illiquid bank could be in trouble if its customers simultaneously decided to draw down their credit lines.

However, if the retail bank has easy access to the wholesale interbank market, its liquidity is much improved. To cover unexpected liquidity shortfalls, it could borrow from banks with excess reserves with little or no credit checks. But if the prevailing interbank lending rate is close to zero, as it is now, then large banks with surplus reserves become loathe to part with their reserves for a derisory yield. In this case, smaller banks, which collectively are big lenders to small and medium-sized enterprises (SMEs), cannot easily bid for funds at an interest rate significantly above the prevailing interbank rate without inadvertently signaling that they might be in trouble (i.e., distressed borrowers). Indeed, counterparty risk in smaller banks remains substantial as about 100 such banks failed in 2011 in the US.

The US system of bank intermediation is essentially broken. Figure 7 shows the sharp fall in interbank lending; interbank loans outstanding in October 2012 were only one-quarter of their level in October 2008. The US recovery remained weak into 2012, with bank credit and employment languishing or increasing only slowly. Figure 7 shows that commercial and industrial loans were significantly less in 2012 than in 2008; instead, banks loaded up with Treasury and agency securities, and cash assets—which are mainly excess reserves held with the Federal Reserve by large commercial banks.

**Figure 7: Asset Holdings of US Commercial Bank Assets, October 2008–October 2012 (billion \$)**



US = United States.  
Source: US Federal Reserve.

But the damage that near zero interest rates has done to financial intermediation in the US is more general than that seen just in banking statistics.<sup>1</sup> Money market mutual funds attract depositors who believe they can withdraw their deposits to get virtually instant liquidity. But as the yields on the short-term liquid assets of these funds approach zero, a small negative shock could cause any of them to “break the buck” if marked to market. That is, a customer trying to withdraw from his account might only get 99 cents on the dollar. Banks and other sponsors of money market mutual funds are paranoid about the reputational risks of breaking the buck. So they have closed, or are closing, money market mutual funds both in Europe (euros) and the US (dollars).<sup>2</sup>

When short-term interest rates are kept close to zero indefinitely, this inevitably drags down long-term rates. A well-known principle of finance is that today’s long rates are just expected future short rates plus a liquidity premium. When Federal Reserve Chairman Ben Bernanke drove short rates down to zero in December 2008, the yield on the 10-year US Treasury bond was 4.0%. By July 2012, the 10-year yield had fallen to 1.45%—and one can expect it to fall further if short rates remain frozen near zero.

In the medium- and longer-term, pension funds are very important financial intermediaries. However, it is well known that defined benefit pension funds everywhere are in serious trouble. In California, for example, most public sector pension funds have assumed a nominal yield of 7.5% on their assets. Default is a prospect for the state’s pension funds as well as for the pension funds of the increasingly numerous California cities and towns that are being forced into bankruptcy because they cannot meet their obligations.

In effect, the US is suffering from a modern form of “financial repression.” Financial intermediation between savers and investors is repressed because near zero market interest rates threaten the viability of financial intermediaries—as discussed above—even when general price inflation and burdensome bank regulation are not problems.

In the 1970s, the term financial repression originated with McKinnon (1973) and Shaw (1973) when inflation was a problem in a number of less developed countries (LDCs). In the 1960s and 1970s, governments in many LDCs intervened to put ceilings on nominal interest rates and impose high reserve requirements on their banks, along with other techniques to direct the flow of credit in the economy. This repressed the supply of investment finance and depositors wound up seeing negative real interest rates; as a result, banking systems in some LDCs shrunk in size. Wanting to find a pejorative term—akin to “political repression”—to describe this syndrome, McKinnon and Shaw first used the term financial repression in 1973.

Although the modern form of financial repression is somewhat different because depositing and lending takes place at market (near zero) rates of interest without bank regulatory distortions, perhaps it is more insidious because it is less obvious.

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<sup>1</sup> For more detail on the failure of low interest rate policies in Japan, see Ueda (2012).

<sup>2</sup> A recent research report from the Boston Federal Reserve found that 78 money market mutual funds would have broken the buck without non-contractual support (Brady et al. 2012).

## 5. Financial Repression in the People's Republic of China

The US Federal Reserve's ultralow interest rates at the center of the world dollar standard also result in a form of financial repression in the PRC (Lardy 2008). As a result of US policy, the People's Bank of China (PBOC) is forced to keep Chinese bank deposit and loan interest rates far below the natural rate of interest associated with a high-growth economy. Even so, because of the large interest differential between the US and the PRC (Table 1), hot money flows in through somewhat porous capital controls so that the PBOC is forced to buy US dollars to keep the exchange rate stable. (The inflow of hot money can also be accentuated by the expected appreciation of the renminbi.) Some of this excess money creation is sterilized, but potential inflationary pressure in the PRC's consumer price index (CPI) remains. How does the resulting financial repression distort the PRC's economy?

**Table 1: Selected Interest Rates of the People's Republic of China and the United States, September 2012**

	PRC	US
Money Market Interest Rate	4.1%	0.20%
Deposit Rate	3.0%	0.30%
Lending Rate	6.0%	3.25%

Source: EIU.

Households see a deposit interest rate below the rate of inflation—a form of taxation that reduces household income and consumption. Some enterprises receive a substantial subsidy in the form of cheap credit—the standard bank loan rate in 2010 was 5.56%—creating excess demand. At this centrally mandated low lending rate, the state-owned banks pick just the safest borrowers, which are large state-owned enterprises (SOEs).

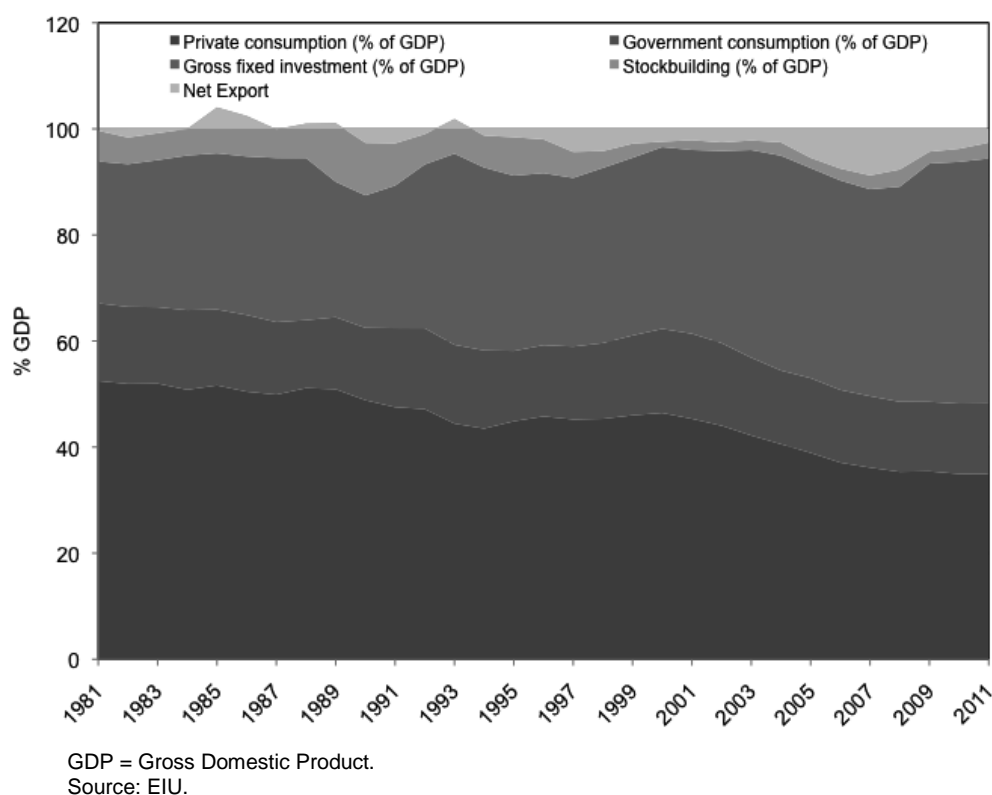
Because the official lending rate is significantly lower than the market clearing rate, there is excess demand for bank credit in the PRC's robust economy. The heavily managed official loan rate band inevitably leads to distortions in the way that bank credit is allocated. At the low loan rate, the commercial banks prefer to lend to state-owned or state-held enterprises because of their relatively low bankruptcy risk. In addition, there is evidence that state-owned and state-held enterprises enjoy preferential loan rates. Szamosszegi and Kyle (2011) listed a group of SOEs whose capital costs were significantly lower than the official maximum rate. Ferri and Liu (2010) did more systematic analysis using a 2001–05 dataset from the PRC's National Bureau of Statistics (NBS). They found that even after controlling for individual features, the cost of debt was significantly lower for SOEs than for private enterprises.

Of course, private SMEs (small and medium sized enterprises) get rationed out altogether when official loan rates are set at a low level. Because of their higher default

rates and higher administrative costs per dollar lent, SMEs typically are given much higher loan rates—between 10% and 20%—to equilibrate the supply and demand for credit.

With credit and possibly other subsidies, the profitability of large SOEs has surged in recent years—and there is no policy of remitting these profits to households; thus, the high proclivity of SOEs to invest in fixed assets at home and abroad.<sup>3</sup> Investment reached a remarkable 45% of gross domestic product (GDP) in 2011 (Figure 8). At near zero real rates of interest, the quality of many of these investments cannot be high. Moreover, the shares of personal income and private consumption are falling as profits surge. Figure 8 shows that the PRC’s level of private consumption in 2011 (35% of GDP) was only about half that of the US.

**Figure 8. GDP Composition of the People’s Republic of China, 1981–2011**



Savers disappointed with negative returns on deposits, together with lenders turned down by the formal banks, comprise the underground or “shadow” financial system in the PRC. Although there is no official figure, in 2005, then-Deputy Governor of the PBOC, Ms. Wu Xiaoling, disclosed that the scale of informal financing was CNY950

<sup>3</sup> As the PRC’s financial reform deepens, we expect this phenomenon to be mitigated. Fixed capital formation in the private sector has risen rapidly since 2000, climbing to nearly 20% of GDP in 2011.



billion, or 5.92% of total loans, according to a PBOC survey. It is likely that the interest rate would be much higher in the underground financial system. For example, Li and Hsu (2009) estimated the national average to be 16.4% between 2004 and 2006.

By 2012, the shadow banking system in the PRC had expanded enormously, as described by Simon Rabinovitch in the *Financial Times*: Shadow banking in [the PRC] assumes various guises. The most basic are the illegal loan sharks who operate mainly in wealthy coastal regions, providing high-interest loans to small businesses that are often ignored by mainstream banks.

But most of [the PRC's] shadow banking is legal. The biggest of the non-bank institutions are trusts, companies akin to hedge funds. They cater to rich investors and promise high returns by lending to risky customers, especially property developers. A range of industrial companies, from shipbuilders to oil majors, also engage in shadow banking as a side business.

Estimates about the size of shadow banking vary widely depending on how it is defined. Tying together various threads of official data, UBS economist Wang Tao believes it is no smaller than CNY13.6 trillion (US\$2 trillion), or about one-quarter of this year's GDP, and could be as big as CNY24.4 trillion, or nearly 50% of GDP.

For all the difficulties of making a calculation, one thing is apparent: its rapid growth. Trusts, the backbone of the shadow sector, had CNY6.3 trillion of assets under management at the end of the third quarter, up 54% from a year earlier and five-times more than at the start of 2009. KPMG says trusts could surpass insurance this year as the second-biggest institutional component of [the PRC's] financial system, smaller only than banks (Rabinovitch 2012).

With opaque market structure and information, the PRC's underground financial system is prone to crisis. A recent example occurred in 2012 in Wenzhou, an underground entrepreneurial hub south of Shanghai. The underground debt panic caused enterprises to go bankrupt, with dozens of firms' owners escaping their debts simply by fleeing. According to the *Financial Times* article cited above:

Long chains of underground financing deals, often based on predatory lending rates, collapsed as exports weakened and property prices tumbled... The city's courts heard 10,269 economic disputes, most related to loan defaults, in the first half of 2012, almost twice as many as last year (Rabinovitch 2012).

## 6. What is the Solution?

A zero interest rate policy in the US contributes to rising macroeconomic and political instability in developing countries and emerging market economies, and is also unlikely to stimulate US growth. Reform efforts should focus much more on international monetary harmonization that limits interest differentials, while accepting the need for exchange rate buffers, such as capital controls, to limit hot money flows.

If interest differentials are too wide, capital controls will always fail. The first item on The Group of Twenty (G-20) agenda should be the abandonment of monetary policies by the mature industrial economies, led by the US, which set interest rates near zero. This would lessen the incentive for central banks in emerging markets to keep their interest rates low despite the inflationary pressures they face and the fact that their “natural” rates of interest are higher. The Federal Reserve must be the leader in raising interest rates in mature economies because, under the asymmetrical world dollar standard, it has the greatest level of autonomy in monetary policy (McKinnon 2013).

US officials point to the stagnant US economy as the reason they want to keep domestic interest rates as low as possible—even zero. They must be convinced that this common view is mistaken and that raising short-term interest rates on US dollar assets from zero to modest levels—say 2.0%—jointly with their peer central banks in developed countries is in the US’ own best interests, as well as the interest of the rest of the world. The longer the Federal Reserve’s zero interest rate policy stays in place, the more difficult it becomes to get out of the resulting liquidity trap and restore a more normal flow of financial intermediation within the US. Such a restoration is needed to avoid in the US the perpetual stagnation we now see in Japan, which is sometimes referred to as “Japanization” (Ueda 2012).

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## **Hot Money Flows, Commodity Price Cycles, and Financial Repression in the US and the People's Republic of China: The Consequences of Near Zero US Interest Rates**

Under near zero U.S. interest rates, the international dollar standard malfunctions. Emerging markets (EM) with naturally higher interest rates are swamped with hot money inflows and begin inflating. The zero interest rate policy also fails to stimulate the US economy as domestic financial intermediation is repressed. The People's Republic of China also suffers from financial repression. Near zero U.S. interest rates are bad for the rest of the world and bad for the U.S. itself.

### **About the Asian Development Bank**

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two-thirds of the world's poor: 1.7 billion people who live on less than \$2 a day, with 828 million struggling on less than \$1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.